

Case Study Answers and Explanations

Question 1: What is the infection window period (IWP) for the first diagnostic test?

- a. **January 13 - January 19**
- b. January 14 - January 18
- c. January 14 - January 20

Explanation:

The correct answer is 'a'.

The Infection Window Period (IWP) is defined as the seven-days during which all site-specific infection criteria must be met. It includes the collection date of the **first positive diagnostic test that is used as an element** to meet the site-specific infection criterion, the three calendar days before and the three calendar days after. The patient has two diagnostic tests. In this case the date of the blood culture collection, January 16, sets the IWP.²

Question 2: What is the site-specific event identified during the first five days of admission?

- a. Symptomatic Urinary Tract Infection 1a HAI
- b. Symptomatic Urinary Tract Infection 1b present on admission (POA)
- c. Asymptomatic Bacteremic Urinary Tract Infection (ABUTI) POA
- d. **Catheter-associated ABUTI HAI**

Explanation:

The correct answer is 'd'.

The patient fulfills the following requirements for ABUTI HAI:

1. Patient with* or without an indwelling urinary catheter has no signs or symptoms of SUTI 1 or 2 according to age AND
2. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 100,000$ CFU/ml AND
3. Patient has organism identified** from blood specimen with at least one matching bacterium to the bacterium at $> 100,000$ CFU/ml identified in the urine specimen or is eligible LCBI criterion 2 (without fever) and matching common commensal(s) in the urine. All elements of the ABUTI criterion must occur during the Infection Window Period.³

*Patient had an IUC in place for more than two consecutive days in an inpatient location on the date of event, and IUC was in place on the date of event or the day before.

** Organisms identified by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (specifically, not Active Surveillance Culture/Testing (ASC/AST)).

Question 3: What is the date of the event?

- a. **January 16**
- b. January 17
- c. January 18

Explanation:

The correct answer is 'a'.

The Date of Event (DOE) is the date the first element used to meet an NHSN site-specific infection criterion occurs for the first time within the seven-day infection window period. In this scenario the positive blood culture identifying *E. coli* as the matching organism to the urine culture is the first element within the IWP. The blood culture was collected on January 16 making this the DOE for the event.² Neither mental status changes nor the positive urinalysis is an eligible element in the NHSN UTI definition.

Question 4: What event would be identified based on the January 25 findings?

- a. No event, the culture results are unacceptable
- b. SUTI 1a included in UTI Repeat Infection Timeframe (RIT), not eligible for reporting**
- c. New event SUTI 1a, eligible for reporting
- d. None of the above

Explanation:

The answer is 'b'.

The Repeat Infection Timeframe (RIT) will apply at the major type of infection and in this case, it is UTI. The RIT is a 14-day timeframe during which no new infections of the same type regardless of symptom changes are reported and applies to both POA and HAI determination. The date of event is Day 1 of the 14-day RIT. In this case, January 16 and the RIT lasts until January 29. Note the original date of event is maintained as is the original 14-day RIT and the type of event does not change. Additional eligible pathogens recovered during the RIT from the same type of infection are added to the event. In this scenario *Klebsiella oxytoca* would be added to the ABUTI event. Candida is not added to the event because it is an excluded pathogen for UTI.^{2,3}

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Hospital Day/Date	First Diagnostic Test	Infection Window Period (*)	Date of Event	Repeat Infection Timeframe (*)	Secondary BSI Attribution Period (*)
1/13/2021		<input type="checkbox"/>			
1. - 1/14/2021 - Admit Date		<input type="checkbox"/>			
2. - 1/15/2021		<input type="checkbox"/>			
3. - 1/16/2021	✓	✓ blood cultures: E.coli	HAI		
4. - 1/17/2021		✓ urine culture: E.coli >100k			
5. - 1/18/2021		<input type="checkbox"/>			
6. - 1/19/2021		<input type="checkbox"/>			
7. - 1/20/2021					
8. - 1/21/2021					
9. - 1/22/2021					
10. - 1/23/2021					
11. - 1/24/2021					
12. - 1/25/2021				It lower back pain; urine culture: <u>K. oxytoca</u> >100k	
13. - 1/26/2021					
14. - 1/27/2021					
15. - 1/28/2021					
16. - 1/29/2021					

References

1. Wright MO, Hebden JN, Bridson KA, Morrell GC, Horan T. Healthcare-associated Infections Studies Project: An American Journal of Infection Control and National Healthcare Safety Network Data Quality Collaboration. *Am J Infect Control* 2010;38:416-8.
2. U.S. Centers for Disease Control and Prevention. The National Healthcare Safety Network (NHSN) Manual: Patient Safety Component. Atlanta, GA: Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases. Chapter 2, p. 3-9. Available at: https://www.cdc.gov/nhsn/pdfs/pscmanual/pscmanual_current.pdf. Accessed March 3, 2020.
3. U.S. Centers for Disease Control and Prevention. The National Healthcare Safety Network (NHSN) Manual: Patient Safety Component. Atlanta, GA: Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases. Chapter 7, p. 5-10. Available at: https://www.cdc.gov/nhsn/pdfs/pscmanual/pscmanual_current.pdf. Accessed June 30, 2020.